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## Engineering

### Degrees

Engineering Technology, Associate of Science  
Engineering, Associate of Science

## Engineering Technology

### Associate of Science Degree

Engineering technologists and engineering technicians are members of a technical team that also includes scientists, engineers and craftsmen. The members of the technical team perform job functions that are complementary and sometimes overlapping. By virtue of their education, training and interests, engineering technologists and engineering technicians are usually differentiated as follows: An engineering technologist uses applied and basic training in mathematics, science, and engineering classes, engineering methods learned through classes and experience, and developed technical (hands-on) skills in direct support of engineering activities. A Bachelor of Science degree in Engineering Technology is required. An engineering technician operates in a support role to aid in design, production, manufacturing, operations, and maintenance. Under professional direction, the engineering technician conducts tests, trouble shooting and analysis, and other similar projects, or carries out functions such as drafting, surveying, designing and technical sales. An Associate in Science degree or a Certificate of Engineering Technology is required. Bakersfield College offers courses required for two years of engineering technology education. Completion of these courses, called the engineering technology core prepares students either for transfer to the colleges and universities offering bachelor's degrees in Engineering Technology, or for completion of an Associate in Science degree in Engineering Technology. A beginning engineering technology student should have completed high school mathematics through intermediate algebra or MATH BD/ MATH B70 at Bakersfield College, one year of high school drafting, and be eligible for ENGL B50.

#### Total Units: 40

##### Required Courses

Course #	Name	Units
ENGR B47**	Introduction to Engineering and Design	2.0
ENGR B45	Properties of Materials	4.0
ENGR B24	Engineering Graphics and Descriptive Geometry	3.0
CHEM B2A*	Introductory General Chemistry	4.0
INDR B12	Introduction to Drafting and CAD	2.0
PHYS B2A*	General Physics-Mechanics and Heat	4.0
PHYS B2b	General Physics-Sound, Light, Electricity, Magnetism, Modern Physics	4.0
MATH B6A*	Analytic Geometry/Calculus I	4.0
MATH B6B*	Analytic Geometry/Calculus II	4.0
ENGR B19C	Introduction to Programming Concepts and Methodologies for Engineers	3.0

\*May be used to also fulfill general education requirements

\*\*Meets student development requirement

#### Program Learning Outcomes

Upon successful completion, the student will:

- demonstrate proficiency in technical skills and safety principles required for employment as an engineering technologist.
- demonstrate problem solving skills used in engineering technology design and product development.
- demonstrate a deep understanding of the core material required for transfer to a four year university degree program in engineering technology

#### Career Opportunities:

Engineering Technology, Sales Engineer, Drafter, Industrial Designer

*Electives - At least 6 Units from the following:*

*See counselor or advisor for specific courses in the following areas*

Electronics/Electrical Technology  
Construction Technology  
Manufacturing Processes Technology  
Welding/Fabrication  
Industrial Drawing  
Graphics

## Engineering

### Associate of Science Degree

People working in the field of engineering and related technical fields bridge the gap between scientific principles and the application of these principles to the needs of society. The field is quite diversified with exciting job opportunities for people with varied mathematic, scientific, and technical skills. An engineer uses experience and judgment, as well as advanced training in engineering, science, and mathematics to formulate ideas and designs, and to determine standards, specifications, work orders and schedules so that projects can be economically beneficial to mankind. A Bachelor of Science in Engineering is required. Many engineers earn master's or doctorate degrees.

#### Program Learning Outcomes

Upon successful completion, the student will:

- solve engineering related problems as related to student made projects and assignments.

#### Career Opportunities:

Engineering Technician (with AS degree), Engineer (with BS degree)

#### Total Units: 47

##### Required Courses

Course #	Name	Units
ENGR B19C	Introduction to Programming Concepts and Methodologies for Engineers	3.0
ENGR B47**	Introduction to Engineering and Design	2.0
MATH B6A*	Analytic Geometry/Calculus I	4.0
MATH B6B	Analytic Geometry/Calculus II	4.0
MATH B6C	Calculus III	4.0
MATH B6D	Ordinary Differential Equations	3.0
CHEM B1A*	General Chemistry I	5.0
PHYS B4A	Mechanics and Wave Motion	4.0
PHYS B4B	Heat, Electricity, Magnetism	4.0
PHYS B4C	Optics & Modern Physics	4.0
ENGR B17	Introduction to Electric Circuits	3.0
ENGR B36	Engineering Mechanics-Statics	3.0
ENGR B45	Properties of Materials	4.0

\*May be used to also fulfill general education requirements

\*\*Meets student development requirement

